Developing a Cohesive Overall Cleanup Strategy for the Hanford Site

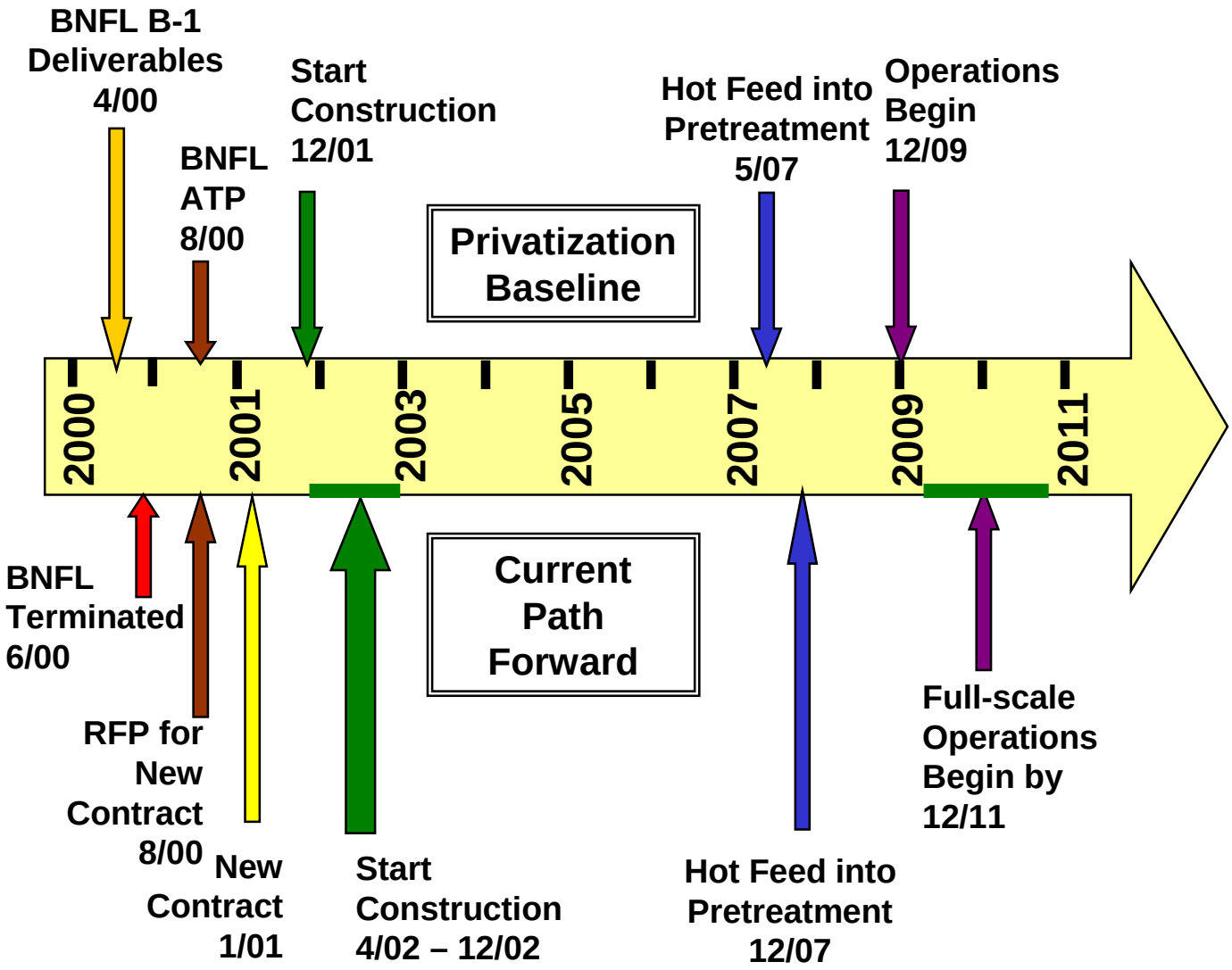
October 23, 2001

Harry Boston, Manager, Office of River Protection

Office of River Protection

Retrieve and treat Hanford's tank waste and close the tank farms to protect the Columbia River

Amelia Island
October 2000

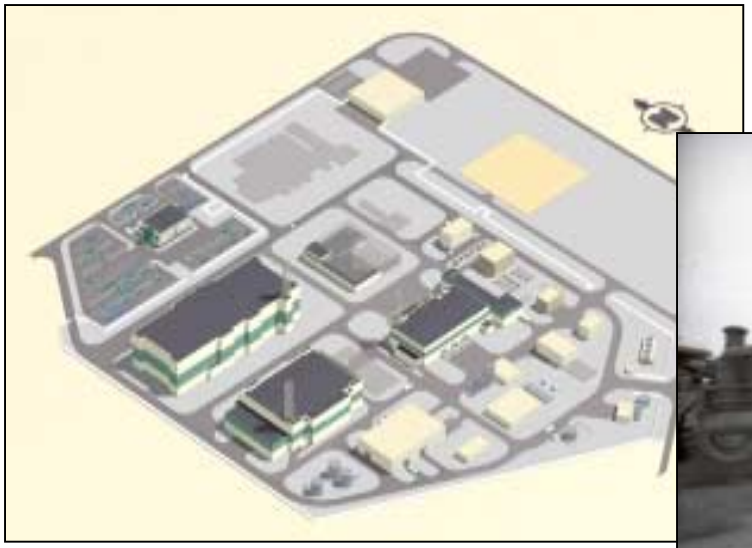


Targets:

- Award New Contracts
- Competent Federal Organization
- Position Contractors for Success
- Collaborative Relationships With Regulators and Stakeholders

Status
October 2001

The River Protection Project Has Moved From Plans to Progress…



…and now we're looking to future opportunities to accelerate risk reduction and drive an early clean-up finish within budget constraints – as part of the plan for Hanford clean-up

The Tank Waste is a Legacy of Hanford's Mission for National Defense

Hanford Tank Waste Compared to Other Sites

- **More waste in more tanks**
- **More chemically complex waste than other sites**
- **Leak prone tanks**

	West Valley	Idaho	Savannah River	Hanford
Total Tanks	**4**	**11**	**51**	**177**
Waste Gallons in Storage	**0.5 million**	**3 million**	**34 million**	**53 million**
Total Curies in Tanks	**22 million**	**48 million**	**493 million**	**190 million**
Total Curies in Capsules	**0**	**0**	**0**	**143 million**
Number of Waste Types	**2**	**2**	**1**	**5**
Number of Tanks that Have Leaked	**0**	**0**	**9**	**67**

Single-shell tanks under construction

149 single-shell tanks:
- Built from 1943-1964
- Tank capacity ranges from 55,000-1 million gallons
- Tanks range from 37-50 ft tall and are 20-75 ft wide

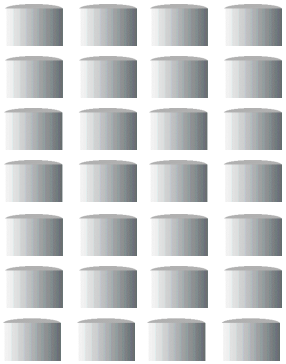
28 double-shell tanks:
- Built from 1968-1986
- Tank capacity ranges from 1-1.16 million gallons
- Tanks are 55 ft tall and 75 ft wide

Two Field Offices--One Hanford Site
Maintaining Alignment and Driving Efficiencies

- **Shared administrative services**
- **Shared site services**
- **Collaboration on sitewide groundwater-vadose zone project**
- **Collaboration on future site use planning (site cleanup strategy)**

Urgency to Remove the Threat to the Columbia River

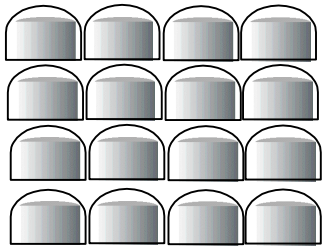
149 Single-Shell Tanks



- Non-compliant
- Up to 57 years old
- 67 have leaked
- 34M gallons stored

Primary threat to the river and economy

28 Double-Shell Tanks

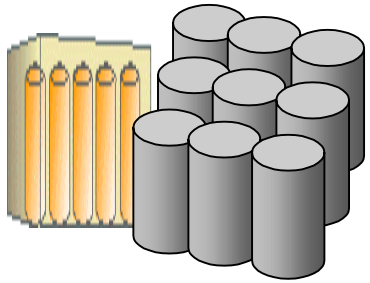


- Compliant
- Will reach capacity in 10 years
- Approaching design life
- Showing signs of age

Waste Treatment Plant

- Converts tank waste to stable glass waste form
- To begin operations in 2007

Waste Immobilized



Tank Farms Closed

River protected

Alternative: Failure to begin waste treatment will result in need / requirement for up to 100 additional double-shell tanks at $60-100M each

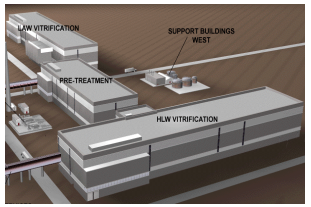
The River Protection Project

Materials

- Operate and maintain tank farms
- Retrieve waste
- Deliver waste feed

CH2M Hill Hanford Group, Inc.

Processes



- Pretreat waste
- Process high-level waste to glass
- Process low-activity waste to glass

Bechtel National, Inc.

Products

- Dispose of immobilized waste
- Close tank farms

CH2M Hill Hanford Group, Inc.

DOE
Manage Contracts, Safety Oversight, Integration

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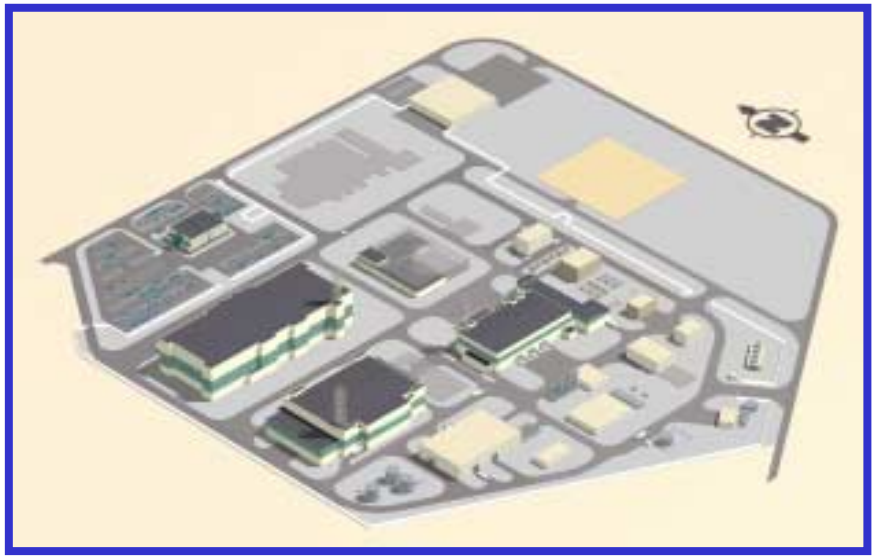
RPP will Construct and Operate the World's Largest Radiochemical Processing Facility at Hanford



			WTP	UK Vit	DWPF	2 Unit Nuclear Plant	Hermiston Co-Gen	Umatilla Incinerator
Scope/ Quantities	Concrete	Cubic Yards	241,700	30,300	93,100	300,000	20,000	22,000
	Structural Steel	Tons	21,250	3,300	540	N/A	1,200	2,200
	HVAC Ductwork	Pounds	2,971,000	N/A	402,000	N/A	N/A	N/A
	Piping	Lineal Feet	866,000	121,000	510,000	350,000	58,000	135,000
	Cable Tray	Lineal Feet	158,800	N/A	30,000	82,000	10,000	28,000
	Conduit	Lineal Feet	1,557,000	N/A	400,000	390,000	57,000	783,000
	Cable	Lineal Feet	6,690,000	920,000	3,700,000	6,100,000	700,000	3,500,000
Schedule	1st Concrete-to-Start Hot Test		61 months	69 months	120 months	72 months	18 months	60 months

Contracts Aligned with the Mission

Bechtel National, Inc.

Ron Naventi

- **Obtained solid technical solution from BNFL-Privatization Contract**
  - Demonstrated technology - Pilot melter
  - Core team transitioned from BNFL to CHG to Bechtel National, Inc.
- **Awarded 10-year, $4B contract to Bechtel National, Inc.**
  - **Commercial practices – innovative safety license approach**
  - **Incentive fee:**
    - Facility meeting or exceeding technical specifications for operations
    - Meeting or beating schedule targets
    - Driving down cost (contractor shares 20% of cost savings with government retaining 80%)
- **Contractor must deliver a facility that can be operated safely, reliably, and cost-effectively for 20+ years**
  - Reduce technical risk, allow for future modification and expansion
  - Contractor incentivized to optimize within the plant and across the River Protection Project

Contracts Aligned with the Mission
CH2M Hill Hanford Group, Inc.

Fran DeLozier

- **Exercised 5-year extension option based on strong performance and potential for continued improvement**
  - Resolving critical safety issues
  - Pumping waste from single-shell tanks
  - Completing preparation for retrieval and delivery
- **Contractor's fee based on completion of project milestones (regulatory driven) and aligned with Waste Treatment Plant schedule**
  - Contractor must perform $2.5B of scope for $2.2B funds to earn full fee (mission critical scope)
- **Contractor will transition tank farms from a storage facility to a nuclear production/operations facility**

2001 Progress

- **Transitioned "Privatization effort" for the Waste Treatment Plant to a commercial modeled, cost-reimbursable, incentive-based contract**
- **Bechtel staffed to 1,400 in October 2001 to complete design**
- **Field mobilization underway**
  - **Full construction authorization 2002**
  - **Hot operations (glass) 2007**
- **Closed Congressional tank safety "Watch List" by resolving issues for 60 high-priority tanks**
- **Developing a clean-up early finish strategy to bring end date forward and significantly reduce program cost**

Challenges and Opportunities

Challenges:

- **Maintaining momentum on a project of this size**
  - **Credibility through performance**
  - **Funding (stability and performance within constraints)**

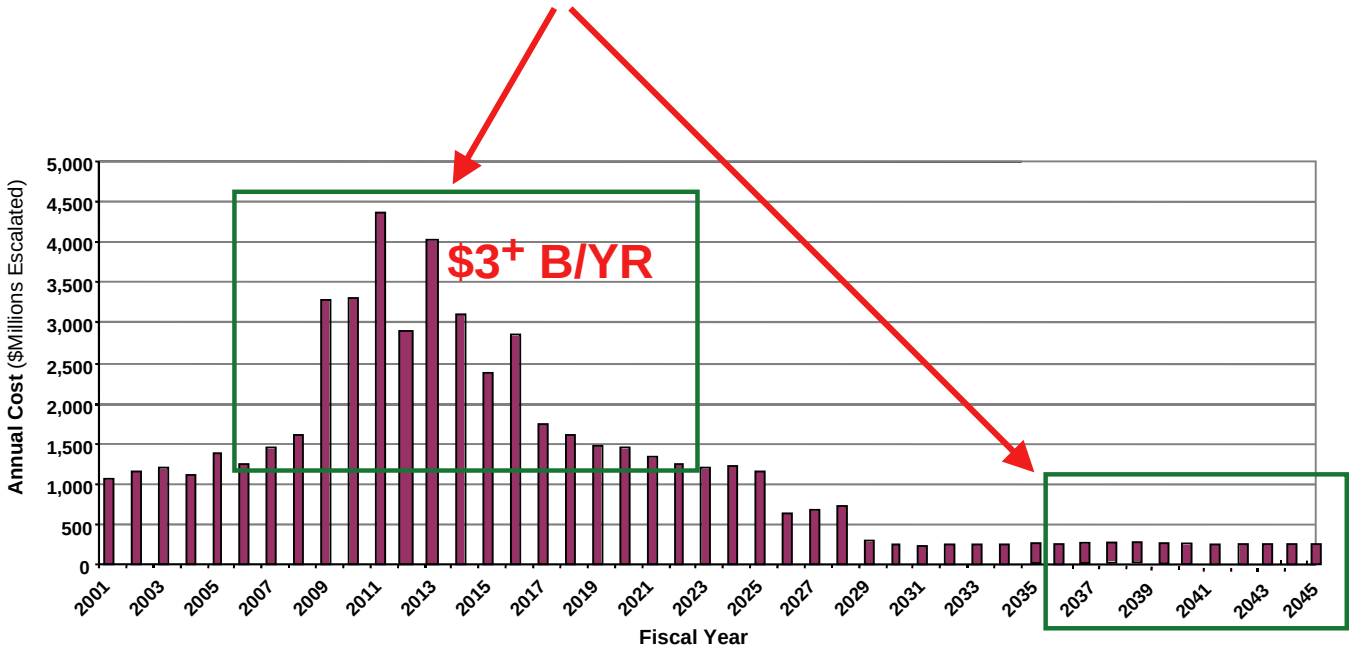
Opportunities:

- **On time--on cost facilities with enhanced capabilities**
- **Early tank closure**
- **Early risk reduction**
- **Shorten schedule and reduce cost for total project**
  - **Linked with plan for Hanford Central Plateau cleanup**

PROBLEM

The existing Baseline for Tank Waste is Too Long, Too Expensive, and is Not Fundable. (50 years $50 Billion plan)

These Costs Must be Eliminated.



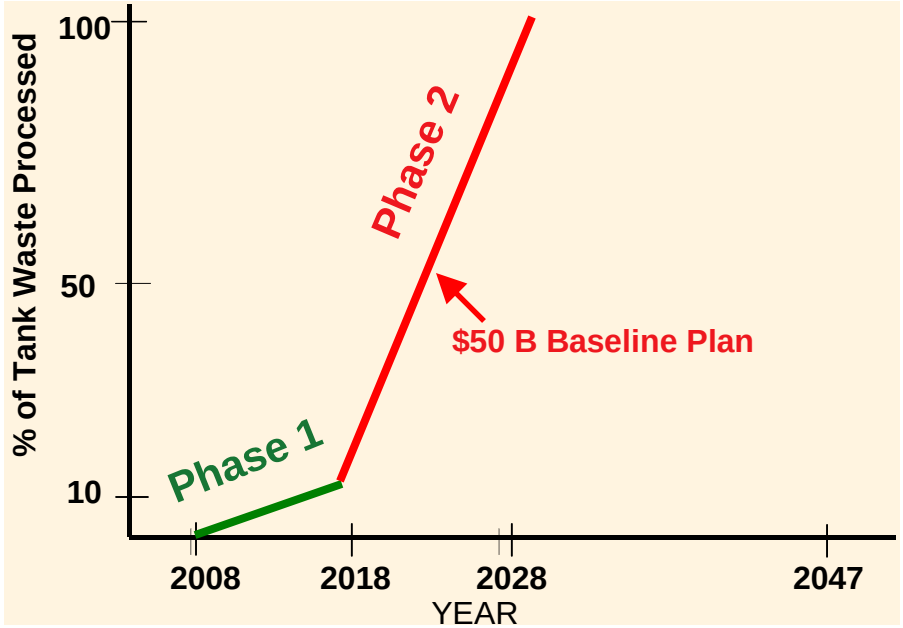
Why? There is a lot of waste to deal with and a conservative treatment plan (99% of waste to be retrieved and vitrified)

Opportunity

We can do what needs to be done.
A lot cheaper and complete the job sooner

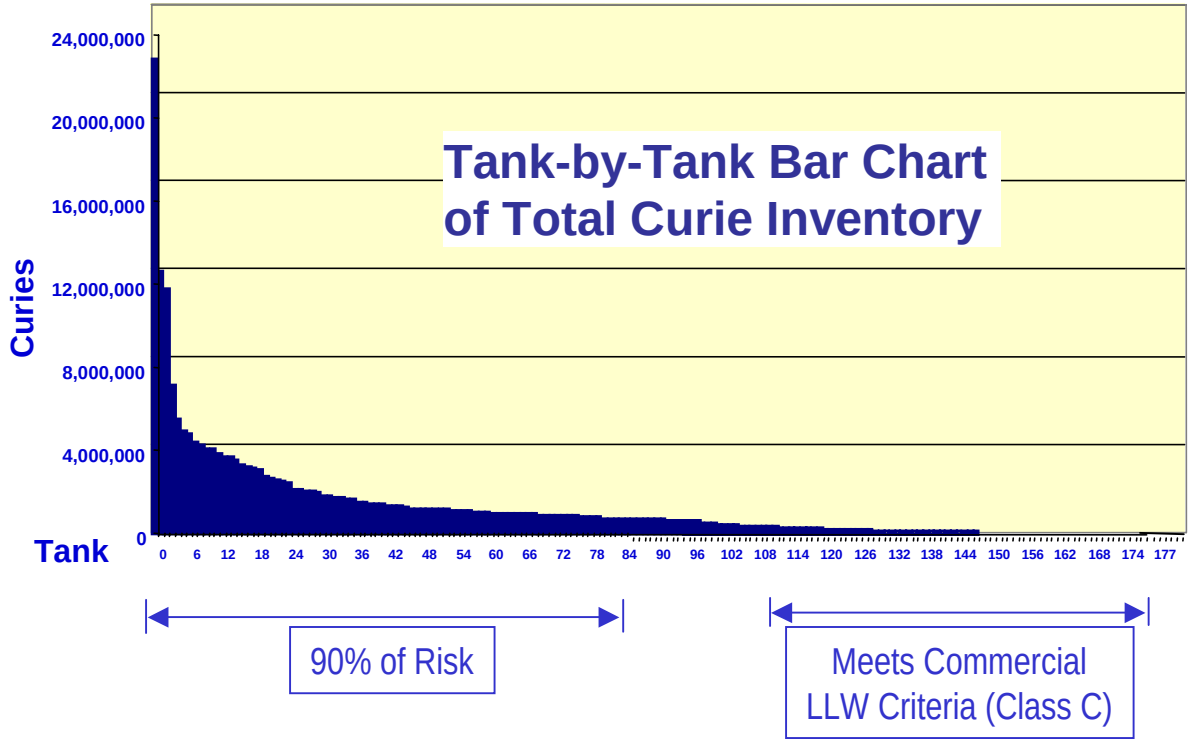
- **Phase 1 facilities to treat the initial quantity of waste (10% by mass)**

- **A second set of facilities (Phase 2) providing 4 times the Phase 1 throughput to complete treatment – A $50B approach**



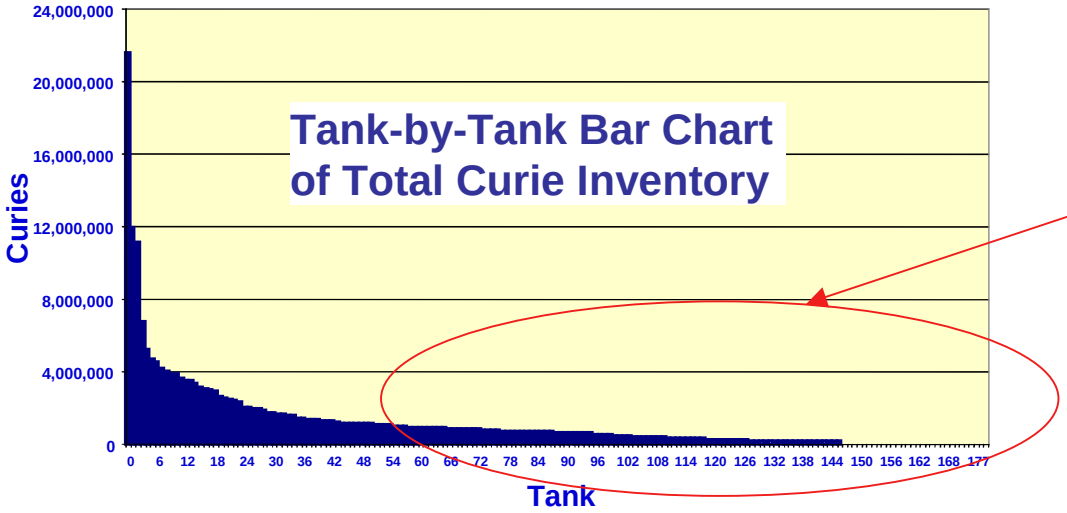
When we take into account tank-by-tank waste characteristics, the massive second phase facilities do not appear to be needed to complete clean-up

Link Waste Treatment and Tank Closure Requirements to the Risk Posed by the Waste



- **High risk waste requires high technology treatment**
- **For lower risk waste, safe disposal and closure may be achieved with less expensive treatment**

Under the existing Baseline, the Hump and High Life Cycle Costs Are Attributable to Retrieval and Treatment of Relatively Low Risk Waste

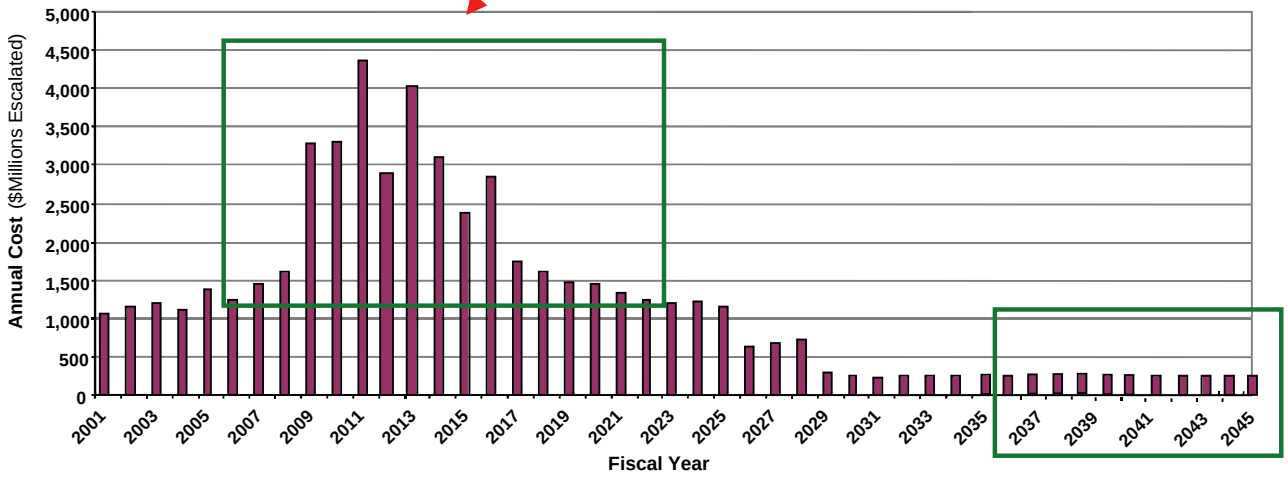


THESE Lower Risk Tanks

result in

THESE $3 – $4 Billion/Yr Baseline Projections

- **large Phase 2 facilities**
- **retrieval of all 177 tanks**



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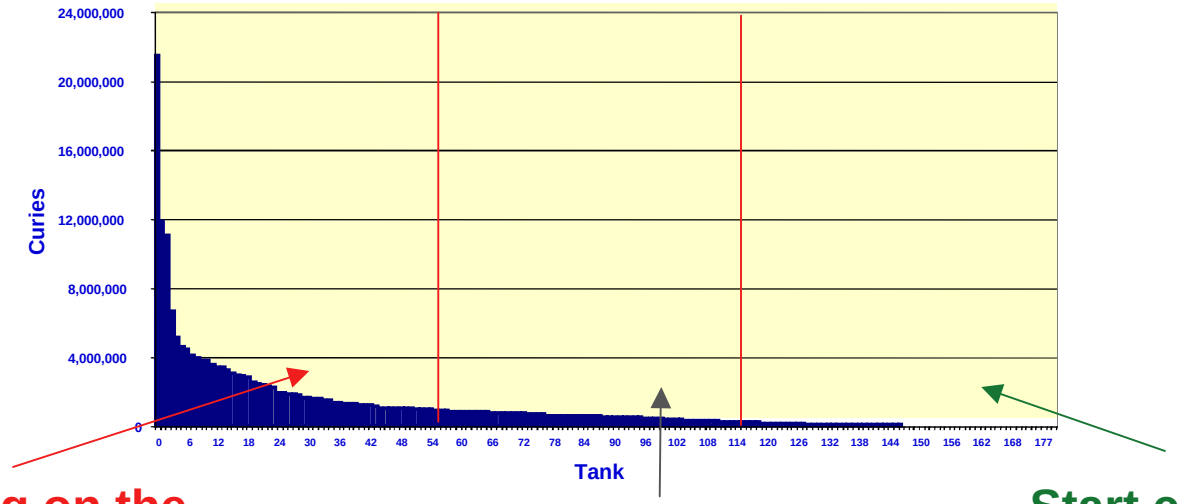
A Risk-Based Three Pronged Approach Eliminates Costly Phase 2 Facilities while Reducing Retrieval, Storage, & Disposal Costs



Keep moving on the Vit Plant

- Deal with worst stuff sooner
- Deal with liquid/mobile waste that must be addressed

Use a risk basis to deal with the remaining tanks (NEPA)

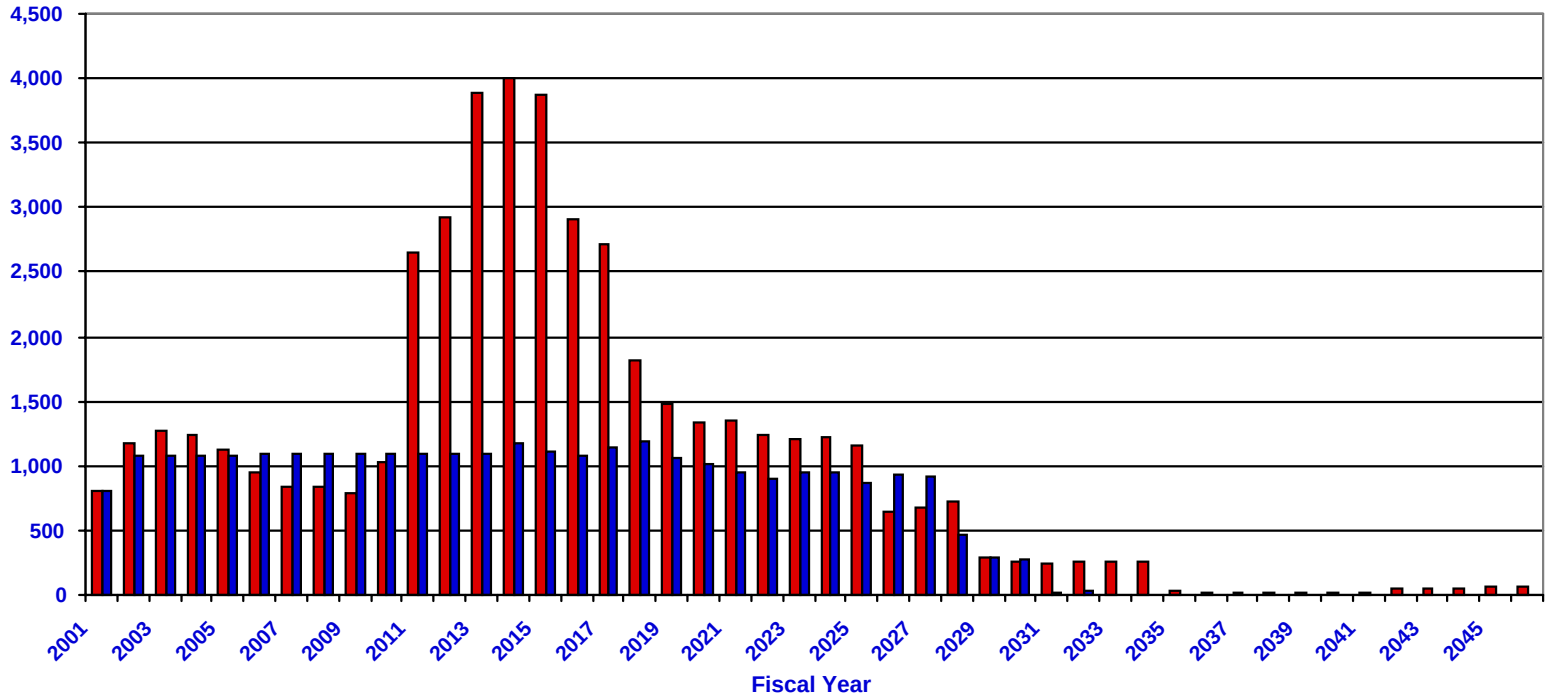
- Existing technologies will work for the remaining tanks
- Chose the most cost effective technology that is protective – don't need to go to glass
- Don't need to begin on these today

Start closing low risk tanks now

- No new $$
- Decrease mortgage – serious about getting done
- Increase industrial safety

Early Finish Approach

- **Risk-based approach and deploying less costly technologies -- providing a level funding profile**
- **Completes mission at a $20B savings for taxpayers**
- **Smart:**
  - **Less expensive plan**
  - **Protects health and environment**
  - **Complies with regulations**
  - **Accelerates risk reduction**



Key Points:

- **Large, complex mission--we have built a foundation for success and are executing the plan**
  - **Buying down technical risk through proven commercial practices**
  - **Business environment that supports contractor delivery of a successful project**
  - **Competent Federal office operating in partnership with contractors**
  - **Driving performance improvement, optimization, and breakthroughs**
  - **Constructive relationships with regulators and stakeholders**
- **Driving to accelerate Rapid Risk Reduction and an early finish within a constrained budget**
  - **Tied to plan for completing clean-up of the Hanford Site**